REMARKS

This paper is responsive to a Final Office action dated September 1, 2006. Claims 1-43 were examined. Claims 1, 3-5, 9-10, 14-16, 18-35, 37, and 39-43 stand rejected under 35 U.S.C. § 102(e) as being anticipated by U. S. Patent No. 6,377,082 B1 to Loinaz et al. Claims 11-13 and 36 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Loinaz et al., as applied to claims 1, 9-10 and 30, in view of U. S. Patent No. 6,592,929 B1 to Coffey et al. Claims 2, 6-8, 17, and 38 stand objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claim Rejections Under 35 U.S.C. § 102

Claims 1, 3-5, 9-10, 14-16, 18-35, 37, and 39-43 stand rejected under 35 U.S.C. § 102(e) as being anticipated by U. S. Patent No. 6,377,082 B1 to Loinaz et al. (hereinafter, "Loinaz"). Claim 1 is amended to clarify the invention.

Regarding amended claim 1, Applicants respectfully maintain that Loinaz, alone or in combination with other references of record, fails to teach or suggest that

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the count value is the number of data bits having a
signal strength above the signal strength threshold
level,
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as required by amended claim 1. The Office relies on inconsistency detector 303 of FIG. 3 of Loinaz to supply this teaching. The decision circuits 306 of FIG. 3 of Loinaz store first values when input data signal 102 is greater than respective decision thresholds 304 and second values when input data signal 102 is below respective decision thresholds 304. Col. 4, lines 35-56. The voltage level of input data signal 102 of Loinaz is used to determine whether input data signal 102 corresponds to a logic level '1' or a logic level '0.' Col. 4, lines 35-50. The decision circuit output signals of Loinaz are used to generate inconsistency signals, which are the logical result of an XOR of the sampled decision circuit outputs. Col. 4, lines 51-62. Those inconsistency signals of Loinaz are then counted to determine an LOS condition. Col. 4, line 51- col. 5, line 10. A count of the inconsistency signals of Loinaz fails to teach or suggest that the count value

is the number of data bits having a signal strength above the signal strength threshold level, as required by amended claim 1. For at least this reason, Applicants respectfully maintain that amended claim 1 distinguishes over Loinaz and all references of record. Accordingly, Applicants respectfully request that the rejection of claim 1 be withdrawn.

Regarding claim 10, Applicants respectfully maintain that Loinaz, alone or in combination with other references of record, fails to teach or suggest

> supplying an offset to the amplifier, the offset being at a level to cause the register to store the first value when the signal strength of the data bit is above the signal strength threshold level and to store the second value when the signal strength of the data bit is below the signal strength threshold level,

as required by claim 10. The Office action relies on decision circuits 306, which include amplifiers 308, and XOR gate 317 of FIG. 3 of Loinaz to supply this teaching. Nowhere does Loinaz teach or suggest supplying an offset to the amplifier, the offset being at a level to cause the register to store the first value when the signal strength of the data bit is above the signal strength threshold level and to store the second value when the signal strength of the data bit is below the signal strength threshold level, as required by claim 10. For at least this reason, Applicants respectfully maintain that claim 10 distinguishes over Loinaz and all references of record. Accordingly, Applicants respectfully request that the rejection of claim 10 and all claims dependent thereon, be withdrawn.

Regarding claim 19, Applicants respectfully maintain that Loinaz, alone or in combination with other references of record, fails to teach or suggest that

> the comparing is performed for each of four phases of a clock before a decision is made that a loss-of-signal condition exists, the loss-of-signal condition corresponding to the loss of signal indication,

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as required by claim 19. The Office action admits that Loinaz fails to teach that <u>comparing is performed for each of four phases of a clock before a decision is made</u> that a loss-of-signal condition exists. The Office apparently relies on inherent teachings of Loinaz to supply the missing disclosure. Applicants respectfully point out that while a teaching may be express or inherent, inherency is a stringent standard.

> To establish inherency, the extrinsic evidence "must make clear that the missing descriptive matter is necessarily present in the thing described in the reference, and that it would be so recognized by persons of ordinary skill." *Continental Can Co. v. Monsanto Co.*, 948 F.2d 1264, 1268, 20 U.S.P.Q.2D (BNA) 1746, 1749 (Fed. Cir. 1991). "Inherency, however, may not be established by probabilities or possibilities. The mere fact that a certain thing may result from a given set of circumstances is not sufficient." Id. at 1269, 20 U.S.P.Q.2D (BNA) at 1749 (quoting *In re Oelrich*, 666 F.2d 578, 581, 212 U.S.P.Q. 323, 326 (C.C.P.A. 1981).

See *In re Robertson*, 169 F.3d 743, 745; 49 USPQ2d 1949, 1950-51 (Fed. Cir. 1999); MPEP § 2112.IV. Applicants disagree that it is inherent for the system of Loinaz to practice the claim. For example, there is no teaching or suggestion that Loinaz <u>must</u> (or does) <u>compare signal strength of a plurality of bits of an input data stream to a signal threshold level for each of four phases of a clock before a decision is made</u> that a loss-of-signal condition exists. To be inherent in comparing for each of four phases of a clock signal before a decision is made that a loss-of-signal condition exists, those functions must by necessity be performed in Loinaz. They are not. For at least this reason, Applicants respectfully maintain that claim 19 distinguishes over Loinaz and all references of record. Accordingly, Applicants respectfully request that the rejection of claim 19 and all claims dependent thereon, be withdrawn.

Regarding claim 26, the Office action fails to point out where Loinaz teaches, and Applicants respectfully maintain that Loinaz fails to teach or suggest that

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the signal strength threshold level for zeros is
generated by negating the signal strength threshold
level generated for ones,
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as required by claim 26. In contrast, Loinaz teaches using a single decision threshold 304 for each of the comparators 308. An individual comparator 308 of Loinaz generates a difference signal indicating a logic '1' or a logic '0' based on the single decision threshold 304. FIG. 3; col.

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4, lines 26-50. Nowhere does Loinaz, alone or in combination with or other references of record, teach or suggest that the signal strength threshold level for zeros is generated by negating the signal strength threshold level generated for ones, as required by claim 26. For at least this reason, Applicants respectfully maintain that claim 26 distinguishes over Loinaz and all references of record. Accordingly, Applicants respectfully request that the rejection of claim 26 and all claims dependent thereon, be withdrawn.

Regarding claim 28, Applicants respectfully maintain that Loinaz, alone or in combination with other references of record, fails to teach or suggest

> determining for a plurality of data bits of an input
> data stream whether a signal strength of each of the
> data bits is above or below a signal threshold level
> and determining that the loss-of-signal condition
> exists if a predetermined number of the data bits have
> a signal strength below the signal threshold level,

as required by claim 28. The Office relies on inconsistency detector 303 of FIG. 3 of Loinaz to supply this teaching. The decision circuits 306 of FIG. 3 of Loinaz store first values when input data signal 102 is greater than respective decision thresholds 304 and second values when input data signal 102 is below respective decision thresholds 304. Col. 4, lines 35-56. The voltage level of input data signal 102 of Loinaz is used to determine whether input data signal 102 corresponds to a logic level '1' or a logic level '0.' Col. 4, lines 35-50. The decision circuit output signals of Loinaz are used to generate inconsistency signals, which are the logical result of an XOR of the sampled decision circuit outputs. Col. 4, lines 51-62. Those inconsistency signals of Loinaz are then counted to determine an LOS condition. Col. 4, line 51- col. 5, line 10. A count of the inconsistency signals of Loinaz fails to teach or suggest determining that the loss-of-signal condition exists if a predetermined number of the data bits have a signal strength below the signal threshold level, as required by claim 28. For at least this reason, Applicants respectfully maintain that claim 28 distinguishes over Loinaz and all references of record. Accordingly, Applicants respectfully request that the rejection of claim 28 and all claims dependent thereon, be withdrawn.

Regarding claim 29, Applicants respectfully maintain that Loinaz, alone or in combination with other references of record, fails to teach or suggest

comparing a magnitude of the sampled input data to a threshold signal strength level and <u>asserting a loss-of-signal indication if a number of samples, over a predetermined time period, having a signal strength less than the threshold signal strength level, is more than a predetermined value</u>,

as recited by claim 29. The Office relies on inconsistency detector 303 of FIG. 3 of Loinaz to supply this teaching. The decision circuits 306 of FIG. 3 of Loinaz store first values when input data signal 102 is greater than respective decision thresholds 304 and second values when input data signal 102 is below respective decision thresholds 304. Col. 4, lines 35-56. The voltage level of input data signal 102 of Loinaz is used to determine whether input data signal 102 corresponds to a logic level '1' or a logic level '0.' Col. 4, lines 35-50. The decision circuit output signals of Loinaz are used to generate <u>inconsistency signals</u>, which are the logical result of an XOR of the sampled decision circuit outputs. Col. 4, lines 51-62. Those <u>inconsistency signals</u> of Loinaz are then <u>counted</u> to determine an LOS condition. Col. 4, line 51- col. 5, line 10. A count of the inconsistency signals of Loinaz fails to teach or suggest <u>asserting a loss-of-signal indication if a number of samples, over a predetermined time period, having a signal strength less than the threshold signal strength level, is more than a predetermined value</u>, as required by claim 29. For at least this reason, Applicants respectfully maintain that claim 29 distinguishes over Loinaz and all references of record. Accordingly, Applicants respectfully request that the rejection of claim 29 and all claims dependent thereon, be withdrawn.

Claim 30 is amended to clarify the invention. Regarding amended claim 30, Applicants respectfully maintain that Loinaz, alone or in combination with other references of record, fails to teach or suggest that

the count value is <u>a number of input data samples having a signal strength above the signal strength threshold level</u>,

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as required by amended claim 30. The Office relies on inconsistency detector 303 of FIG. 3 of Loinaz to supply this teaching. The decision circuits 306 of FIG. 3 of Loinaz store first values when input data signal 102 is greater than respective decision thresholds 304 and second values when input data signal 102 is below respective decision thresholds 304. Col. 4, lines 35-56. The voltage level of input data signal 102 of Loinaz is used to determine whether input data signal 102 corresponds to a logic level '1' or a logic level '0.' Col. 4, lines 35-50. The decision circuit output signals of Loinaz are used to generate <u>inconsistency signals,</u> which are the logical result of an XOR of the sampled decision circuit outputs. Col. 4, lines 51-62. Those <u>inconsistency signals</u> of Loinaz are then <u>counted</u> to determine an LOS condition. Col. 4, line 51- col. 5, line 10. A count of the inconsistency signals of Loinaz fails to teach or suggest that the count value is <u>a number of input data samples having a signal strength above the signal strength threshold level</u>, as required by amended claim 30. For at least this reason, Applicants respectfully maintain that claim 30 distinguishes over Loinaz and all references of record. Accordingly, Applicants respectfully request that the rejection of claim 30 and all claims dependent thereon, be withdrawn.

Regarding claim 32, Applicants respectfully maintain that Loinaz, alone or in combination with other references of record, fails to teach or suggest that

> the threshold count <u>varies according to an indication of the signal strength threshold level</u>,

as required by claim 32. The Office relies on transition detector 301 of Loinaz to supply this teaching. Transition detector 301 of Loinaz detects the number of 0-1 and 1-0 transitions and produces a high output signal if less than K transitions are detected over a specified time period. Col. 2, lines 9-20. Nowhere does Loinaz teach that the threshold count <u>varies according to an indication of the signal strength threshold level</u>, as required by claim 32. For at least this reason, Applicants respectfully maintain that claim 32 distinguishes over Loinaz and all references of record. Accordingly, Applicants respectfully request that the rejection of claim 32 and all claims dependent thereon, be withdrawn.

Regarding claim 33, Applicants respectfully maintain that Loinaz, alone or in combination with other references of record, fails to teach or suggest that

the threshold count varies to provide hysteresis in
generating the loss-of-signal indication,

as required by claim 33. The Office relies on transition detector 301 of Loinaz to supply this
teaching. Transition detector 301 of Loinaz detects the number of 0-1 and 1-0 transitions and
produces a high output signal if less than K transitions are detected over a specified time period.
Col. 2, lines 9-20. Nowhere does Loinaz teach that the threshold count varies to provide
hysteresis in generating the loss-of-signal indication, as required by claim 33. For at least this
reason, Applicants respectfully maintain that claim 33 distinguishes over Loinaz and all
references of record. Accordingly, Applicants respectfully request that the rejection of claim 33
and all claims dependent thereon, be withdrawn.

Regarding claim 34, Applicants respectfully maintain that Loinaz, alone or in
combination with other references of record, fails to teach or suggest that

the threshold count value increases when the loss-of-
signal indication is asserted,

as required by claim 34. The Office relies on transition detector 301 of Loinaz to supply this
teaching. Transition detector 301 of Loinaz detects the number of 0-1 and 1-0 transitions and
produces a high output signal if less than K transitions are detected over a specified time period.
Col. 2, lines 9-20. Nowhere does Loinaz teach that the threshold count value increases when the
loss-of-signal indication is asserted, as required by claim 34. For at least this reason, Applicants
respectfully maintain that claim 34 distinguishes over Loinaz and all references of record.
Accordingly, Applicants respectfully request that the rejection of claim 34 and all claims
dependent thereon, be withdrawn.

Regarding claim 35, Applicants respectfully maintain that Loinaz, alone or in
combination with other references of record, fails to teach or suggest

the sample circuit includes an amplifier, the
amplifier being coupled to receive an offset, the
offset being at a level to cause the sample circuit to
store the first value when the signal strength

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magnitude of the sampled input data is above the
signal strength threshold level and to store the
second value when the signal strength magnitude of the
sampled input data is below the signal strength
threshold level,
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as required by claim 35. The Office action relies on decision circuits 306, which include amplifiers 308, and XOR gate 317 of FIG. 3 of Loinaz to supply this teaching. Nowhere does Loinaz teach or suggest that the sample circuit includes an amplifier, the <u>amplifier being coupled to receive an offset</u>, the offset being at a level to cause the sample circuit to store the first value when the signal strength magnitude of the sampled input data is above the signal strength threshold level and to store the second value when the signal strength magnitude of the sampled input data is below the signal strength threshold level, as required by claim 35. For at least this reason, Applicants respectfully maintain that claim 35 distinguishes over Loinaz and all references of record. Accordingly, Applicants respectfully request that the rejection of claim 35 and all claims dependent thereon, be withdrawn.

Regarding claim 39, Applicants respectfully maintain that Loinaz, alone or in combination with other references of record, fails to teach or suggest

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a multiple clock phase generator circuit coupled to
supply to the sample circuit and the decimator circuit
one of a plurality of phases of a clock,
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as required by claim 39. The Office apparently relies on inherent teachings of Loinaz to supply the missing disclosure. Applicants respectfully point out that while a teaching may be express or inherent, inherency is a stringent standard.

> To establish inherency, the extrinsic evidence "must make clear that the missing descriptive matter is necessarily present in the thing described in the reference, and that it would be so recognized by persons of ordinary skill." *Continental Can Co. v. Monsanto Co.*, 948 F.2d 1264, 1268, 20 U.S.P.Q.2D (BNA) 1746, 1749 (Fed. Cir. 1991). "Inherency, however, may not be established by probabilities or possibilities. The mere fact that a certain thing may result from a given set of circumstances is not sufficient." Id. at 1269, 20 U.S.P.Q.2D (BNA) at 1749 (quoting *In re Oelrich*, 666 F.2d 578, 581, 212 U.S.P.Q. 323, 326 (C.C.P.A. 1981).

See *In re Robertson*, 169 F.3d 743, 745; 49 USPQ2d 1949, 1950-51 (Fed. Cir. 1999); MPEP §
2112.IV. Applicants disagree that it is inherent for the system of Loinaz to practice the claim.
For example, there is no teaching or suggestion that Loinaz <u>must</u> (or does) include <u>a multiple
clock phase generator circuit</u> coupled to supply to the sample circuit and the decimator circuit
one of a plurality of phases of a clock. To be inherent in generating multiple clock phases, those
functions must by necessity be performed in Loinaz. They are not. For at least this reason,
Applicants respectfully maintain that claim 39 distinguishes over Loinaz and all references of
record. Accordingly, Applicants respectfully request that the rejection of claim 39 and all claims
dependent thereon, be withdrawn.

Regarding claim 42, Applicants respectfully maintain that Loinaz, alone or in
combination with other references of record, fails to teach or suggest

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means for determining for a plurality of data bits of
an input data stream whether a signal strength
magnitude of each of the data bits is above or below a
signal threshold level, means for determining that the
loss-of-signal condition exists if a predetermined
number of the data bits have a signal strength
magnitude below the signal threshold level,
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as required by claim 42. The Office relies on inconsistency detector 303 of FIG. 3 of Loinaz to
supply this teaching. The decision circuits 306 of FIG. 3 of Loinaz store first values when input
data signal 102 is greater than respective decision thresholds 304 and second values when input
data signal 102 is below respective decision thresholds 304. Col. 4, lines 35-56. The voltage
level of input data signal 102 of Loinaz is used to determine whether input data signal 102
corresponds to a logic level '1' or a logic level '0.' Col. 4, lines 35-50. The decision circuit
output signals of Loinaz are used to generate <u>inconsistency signals</u>, which are the logical result
of an XOR of the sampled decision circuit outputs. Col. 4, lines 51-62. Those <u>inconsistency
signals</u> of Loinaz are then <u>counted</u> to determine an LOS condition. Col. 4, line 51- col. 5, line
10. A count of the inconsistency signals of Loinaz fails to teach or suggest means for
determining that the loss-of-signal condition exists if <u>a predetermined number of the data bits</u>
have a signal strength magnitude below the signal threshold level, as required by claim 42. For

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at least this reason, Applicants respectfully maintain that claim 42 distinguishes over Loinaz and all references of record. Accordingly, Applicants respectfully request that the rejection of claim 42 and all claims dependent thereon, be withdrawn.

Regarding claim 43, Applicants respectfully maintain that Loinaz, alone or in combination with other references of record, fails to teach or suggest

> means for comparing signal strength magnitude of the
> sampled input data stream to a threshold signal
> strength level and means for asserting a loss-of-
> signal indication if a number of samples having signal
> strength less than the threshold signal strength level
> is less than a predetermined value,

as recited by claim 43. The Office relies on inconsistency detector 303 of FIG. 3 of Loinaz to supply this teaching. The decision circuits 306 of FIG. 3 of Loinaz store a first value when input data signal 102 is greater than decision thresholds 304 and a second value when input data signal 102 is below decision thresholds 304. Col. 4, lines 35-56. The voltage level of input data signal 102 of Loinaz is used to determine whether input data signal 102 corresponds to a logic level '1' or a logic level '0.' Col. 4, lines 35-50. The decision circuit output signals of Loinaz are used to generate inconsistency signals, which are the logical result of an XOR of the sampled decision circuit outputs. Col. 4, lines 51-62. Those inconsistency signals of Loinaz are then counted to determine an LOS condition. Col. 4, line 51- col. 5, line 10. A count of the inconsistency signals of Loinaz fails to teach or suggest means for asserting a loss-of-signal indication if a number of samples having signal strength less than the threshold signal strength level is less than a predetermined value, as required by claim 43. For at least this reason, Applicants respectfully maintain that claim 43 distinguishes over Loinaz and all references of record. Accordingly, Applicants respectfully request that the rejection of claim 43 and all claims dependent thereon, be withdrawn.

Claim Rejections Under 35 U.S.C. § 103

Claims 11-13 and 36 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Loinaz et al., as applied to claims 1, 9-10 and 30, in view of U. S. Patent No. 6,592,929 B1 to Coffey et al. (hereinafter "Coffey"). Applicants believe that claims 11-13 and 36 depend from allowable base claims and are allowable for at least this reason.

Allowable Subject Matter

Applicants appreciate the indication of allowable subject matter in claims 2, 6-8, 17, and 38. Claim 6 is amended to be in independent form.

Applicants believe that claims 2, 7, 8, 17 and 38 depend from allowable base claims and are allowable for at least this reason.

Additional Remarks

Claim 16 is amended to depend from claim 6, which was indicated as allowable. Claim 16 is allowable for at least this reason.

In summary, claims 1-43 are in the case. All claims are believed to be allowable over the art of record, and a Notice of Allowance to that effect is respectfully solicited. Nonetheless, if any issues remain that could be more efficiently handled by telephone, the Examiner is requested to call the undersigned at the number listed below.

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